

WHAT IS CLAIMED IS:

1. A process for chroming an inner surface of a component, comprising:

providing a mixture of chromium granules and an activator;

heating the mixture to a temperature at which a substantially gaseous coating gas comprising  $\text{CrCl}$  is formed; dissipating the coating gas; and

exposing the inner surface of the component to the coating gas, thereby forming a chromium-containing diffusion layer.

2. A process according to Claim 1, wherein the mixture comprises approximately 99% by weight of the chromium granules and approximately 1% by weight of the activator.

3. A process according to Claim 1, wherein the activator is  $\text{NH}_4\text{Cl}$  or  $\text{HCl}$ .

4. A process according to Claim 1, wherein the heating of the mixture is at a temperature of approximately  $1200^\circ\text{C}$ .

5. A process according to Claim 1, wherein the dissipating of the coating gas and the exposing of the inner surface of the component occur automatically by the force of gravity.

6. A process according to Claim 1, wherein the process is carried out in an inert environment.

7. A process according to Claim 1, wherein the component is a hollow turbine blade.

8. A process according to Claim 1, wherein the chromium-containing diffusion layer has a thickness of about 25  $\mu\text{m}$ .

9. A process according to Claim 1, wherein the chromium-containing diffusion layer has a chromium content in a range from 17% to 20%.

10. An apparatus for chroming an inner surface of a component, comprising:

a container for accommodating a mixture of chromium granules and an activator, said container having at least one outlet at a bottom of the container; and

a device for holding the component so that the at least one outlet is positioned in a region of the inner surface of the component.

11. An apparatus for chroming an inner surface of a component, comprising:

a container for accommodating a mixture of chromium granules and an activator, said container having at least one outlet at a bottom of the container; and

a device for holding a component so that the at least one outlet is positioned in a region of an inner surface of the component,

wherein the container and the device are arranged in a heatable retort for heating the mixture to a temperature at which a coating gas is formed.

12. An apparatus according to Claim 10, wherein the bottom of the container slopes downwards towards the at least one outlet.

13. An apparatus according to Claim 10, wherein the bottom of the container is funnel-shaped and slopes downwards towards the at least one outlet.

14. An apparatus according to Claim 10, wherein a shape of the at least one outlet is matched to a shape of a cavity that includes the inner surface of the component.

15. An apparatus according to Claim 11, wherein the retort has a gas-feed device and a gas-discharge device for creating an inert atmosphere.

16. An apparatus according to Claim 10, further comprising a feedline leading into the container for an activator in powder or gas form.

17. An apparatus according to Claim 11, wherein a multiplicity of containers are arranged in the retort.